

Fnal

- 6 magnets measured
 - steady improvement in field quality
 - last 3 had “acceptable” field quality as built
 - ensemble (making as built corrections to first 3 magnets) also acceptable
 - issues
 - differences in field from 1 tc to the next
 - eddy currents

Fnal field quality

- Plans
 - short probe for fabrication measurements
 - integral probe for production measurements
 - ssw for alignment
 - issues
 - any reason to have an absolute angular reference from rotating coil measurements (*no*)

KEK

- 3 models measured
- new model to be tested next month
 - b6 -0.12 (↓-0.20)
 - b10 0.001 (↓-0.84)
- differences in strength due to differences in yoke length

KEK

- Plans
 - probes adapted to various measurements
 - can't completely measure return end
 - no on the fly measurements yet
 - issues
 - at how many fixed currents to measure the field (*10+ for interpolation*)
 - where to truncate reporting of harmonics ($n=14-20$)

KEK

– issues

- is warm measurement of axis and tilt necessary (*no in my opinion, may want it for redundancy, QA*)
- accelerator cycle only in prototype (?)
- cross calibration
 - proposed to ship model to Fnal ()
 - current calibration (*no conclusion*)

Fnal ssw

- SSW
 - GL a few $\times 10^{-4}$
 - avg axis $< 50 \mu$
 - true axis $< 150 \mu$
 - roll $100 \mu\text{rad}$
 - transfer to fiducials with laser tracker 50-100 μ

Fnal ssw

- new techniques
 - ac current for measuring small fields
 - use frequency of wire vibration to extrapolate to infinite tension

Fnal ssw

- tests
 - wire stretched to 16 m
 - geometry similar to Q2 measurement
 - results as expected from calculations
 - within specs
 - use of magnesium wire extrapolates the 16 m result to 20

Fnal ssw

- issues
 - residual field of one when measuring the other
()
 - stray fields from leads ()
 - impact of Q2s on corrector alignment ()
 - absolute accuracy of alignment
 - (16 m tests only checked relative to short wire)
 - (*check with conventional magnet*)

CERN

- ASM
 - provides local measurement
 - $G(z)$
 - $\text{angle}(z)$
 - $b_n, a_n(z)$
 - x, y offset (z) $120\ \mu\text{m}$
 - accommodates up to 12 m magnet

BNL 1

- described various means used for measuring axis
 - ferrofluidic cell
 - antennas
- other tools
- magnet polarity checker
- BPM antenna

BNL 1

- described scheme for “lhctripstat” which would integrate laser tracker data with ssw data

BNL 2

- roll measured to 0.2-0.3 mrad which was good enough but about as good as could be done
- had to pay attention to distortions in alignment every time a welder showed up
- cross checks on alignment measurement